

### **ABSTRACT OF THE DISCLOSURE**

A variable gain optical amplifier and method for control thereof is provided that includes an amplifier stage having a light pump, and a power source for the pump, and a variable optical attenuator connected to the amplifier stage and having a movable controller that changes attenuation of the amplifier output when moved to a different position. The dynamic controller of the amplifier includes gain detecting circuits that generate signals indicative of input and output signal strengths of the amplifier stage, and a circuit that provides a signal indicative of a position of the attenuator controller, as well as a digital signal processor connected to the outputs of the gain detecting circuits and position indicating circuit. The digital process maintains a selected gain setpoint for the amplifier in accordance with a predetermined relationship between amplifier gain and the signal input and output strengths, and a position of the attenuator controller and signal attenuation. The use of a position indicating circuit in the dynamic controller obviates the need for one of the gain detecting circuits normally used in such a controller, and thus simplifies the structure and reduces expense of the dynamic controller of the amplifier with no sacrifice in performance.